

WHAT IS CLAIMED IS:

1. A method for polishing a copper layer, the method comprising the steps of:

- 5 a) forming the copper layer on a substrate; and
- b) polishing the copper layer through a CMP process, in which slurry having a polishing rate of at least 10,000Å/min with respect to the copper layer is used.

- 10 2. The method as claimed in claim 1, wherein, in step (b), the CMP process is carried out under polishing pressure of 0.1 to 2psi.

3. The method as claimed in claim 1, wherein, in step
- 15 (b), slurry including polycarboxylate polymer is used.

4. A method for forming a copper layer wiring, the method comprising the steps of:

- a) forming a sacrificial layer pattern having a trench
- 20 on a substrate;

 b) continuously forming a copper layer on a sidewall of the trench, a bottom surface of the trench, and the sacrificial layer pattern; and

- c) polishing the copper layer through a CMP process by

using slurry having a polishing rate of at least 10,000Å/min with respect to the copper layer, thereby exposing a surface of the sacrificial layer pattern.

5 5. The method as claimed in claim 4, wherein, in step (c), slurry including polycarboxylate polymer is used and the CMP process is carried out under polishing pressure of 0.1 to 2psi.

10 6. A method for forming a copper layer wiring, the method comprising the steps of:

 a) forming a first sacrificial layer pattern having a first trench on a substrate;

 b) continuously forming a first copper seed layer on a
15 sidewall of the first trench, a bottom surface of the first trench, and the first sacrificial layer pattern;

 c) polishing the first copper seed layer through a CMP process by using slurry having a polishing rate of at least 10,000Å/min with respect to the first copper seed layer,
20 thereby exposing a surface of the first sacrificial layer pattern;

 d) removing the first sacrificial layer pattern to a height of the first copper seed layer formed on the bottom surface of the first trench, thereby forming a trench

structure having the first trench filled with the first copper seed layer;

e) forming a second sacrificial layer pattern having a second trench, which exposes the trench structure, on the first sacrificial layer pattern having the trench structure;

f) continuously forming a second copper seed layer on a sidewall of the second trench, a bottom surface of the second trench, and the second sacrificial layer pattern;

g) continuously forming a copper layer on the second copper seed layer; and

h) sequentially removing the copper layer and the second copper seed layer, thereby exposing a surface of the second sacrificial layer pattern.

7. The method as claimed in claim 6, wherein the first and the second sacrificial layer patterns include a photoresist pattern.

8. The method as claimed in claim 6, wherein, in step (c), the CMP process is performed for the first copper seed layer by using slurry including polycarboxylate polymer under polishing pressure of 0.1 to 2psi.

9. The method as claimed in claim 6, wherein, in step

(d), the first sacrificial layer pattern is removed through an etching process using solvent or the CMP process.

10. The method as claimed in claim 6, wherein, in step
5 (g), the copper layer is formed through an electroplating process, a chemical vapor deposition, or a physical vapor deposition.

11. The method as claimed in claim 6, wherein, in step
10 (h), the copper layer and the second copper seed layer are sequentially removed through a CMP process using slurry.

12. The method as claimed in claim 11, wherein the CMP process is carried out by using slurry having a polishing
15 rate of at least 10,000Å/min with respect to the copper layer and the second copper seed layer.

13. The method as claimed in claim 11, wherein the CMP process is performed by using slurry including
20 polycarboxylate polymer under polishing pressure of 0.1 to 2psi.